

Translate \rightarrow
 Vector \overrightarrow{AB}
 -Component $\langle x_2 - x_1, y_2 - y_1 \rangle$

Rotate (on/off coordinate)

$$90^\circ (a, b) \rightarrow (-b, a)$$

$$180^\circ \rightarrow (-a, -b)$$

$$270^\circ \rightarrow (b, -a)$$

Reflections

$$x\text{-axis } (a, b) \rightarrow (a, -b)$$

$$y\text{-axis } (a, b) \rightarrow (-a, b)$$

$$y=x \ (a, b) \rightarrow (b, a)$$

$$y=-x \ (a, b) \rightarrow (-b, -a)$$

Dilations

Origin or point as center
 Isometry

Symmetry